

AB004. Optimal delineation of the clinical target volume for thymomas in the postoperative setting: a multi-center study

Florit Marcuse¹, Stephanie Peeters², Kato Herman¹, Femke Vaassen², Wouter van Elmpt², Alexander P. W. M. Maat³, John Praag⁴, Charlotte Billiet⁵, Paul Van Schil⁶, Maarten Lambrecht⁷, Dirk Van Raemdonck⁸, Kim Cao⁹, Madalina Grigoriu¹⁰, Nicolas Girard¹¹, Monique Hochstenbag¹, Jos Maessen¹², Dirk De Ruyscher²

¹Department of Pulmonology, Maastricht University Medical Center+, Maastricht, The Netherlands; ²Department of Radiation Oncology (Maastricht Clinic), GROW School for Oncology and Developmental Biology, Maastricht University Medical Center+, Maastricht, The Netherlands; ³Department of Cardiothoracic surgery, Erasmus Medical Center, Rotterdam, The Netherlands; ⁴Department of Radiation Oncology, Erasmus Medical Center, Rotterdam, The Netherlands; ⁵Department of Radiation Oncology, Antwerp University Medical Center, Antwerp, Belgium; ⁶Department of Thoracic and Vascular Surgery, Antwerp University Hospital and Antwerp University, Antwerp, Belgium; ⁷Department of Radiation Oncology, University Hospitals Leuven/KU Leuven, Leuven, Belgium; ⁸Department of Thoracic Surgery, University Hospitals Leuven/KU Leuven, Leuven, Belgium; ⁹Department of Radiation Oncology, L'Institut du Thorax Curie-Montsouris, Paris, France; ¹⁰Department of Thoracic surgery, L'Institut du Thorax Curie-Montsouris, Paris, France; ¹¹Institut du Thorax Curie-Montsouris, Institut Curie, Paris, France and UVSQ, Paris Saclay, Versailles, France; ¹²Department of Cardiothoracic surgery, Maastricht University Medical Center+, Maastricht, The Netherlands

Correspondence to: Florit Marcuse. Department of Pulmonology, Maastricht University Medical Center+, Limburg, Maastricht, The Netherlands. Email: florit.marcuse@mumc.nl.

Background: The detailed definition of the clinical target volume (CTV) for post-operative radiotherapy (PORT) for thymoma is largely unexplored. The aim of this study was to analyse the difference in CTV delineation between

radiation oncologists (RTO) and surgeons.

Methods: This retrospective multi-center study enrolled 31 patients who underwent PORT for a thymoma from five hospitals. Three CTVs were delineated per patient: one CTV by the RTO, one CTV by the surgeon (blinded to the results of the RTO) and a joint CTV after collaboration. Volumes (cm³), Hausdorff distances (HD) and Dice similarity coefficients (DSC) were analyzed.

Results: RTO delineated significantly bigger CTV than surgeons (mean: 93.9±63.1, versus 57.9±61.3 cm³, P=0.003). Agreement was poor between RO and surgeons, with a low mean DSC (0.34±0.21) and high mean HD (4.5±2.2 cm). Collaborative delineation resulted in significantly smaller volumes compared to RTO (P<0.001). A mean volume of 18.9 cm³ (±38.1) was included in joint contours, but missed by RTO. Conversely, a mean volume of 55.7 cm³ (±39.9) was included in RTO's delineations, but not in the joint delineations.

Conclusions: To the best of our knowledge, this is the first study investigating CTV definition in thymoma. We demonstrated a significant variability between RTO and surgeons. Joint delineation prompted revisions in smaller CTV as well as favouring the surgeons' judgement, suggesting that surgeons provided relevant insight into other risk areas than RTO. We recommend a multidisciplinary approach to PORT for thymomas in clinical practice.

Keywords: Thymomas; post-operative radiotherapy (PORT); clinical target volume (CTV)

Acknowledgments

Funding: None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/med.2021.ab004

Cite this abstract as: Marcuse F, Peeters S, Herman K, Vaassen F, van Elmpt W, Maat APWM, Praag J, Billiet C, Van Schil P, Lambrecht M, Van Raemdonck D, Cao K, Grigoriou M, Girard N, Hochstenbag M, Maessen J, De Ruysscher D. Optimal delineation of the clinical target volume for thymomas in the postoperative setting: a multi-center study. *Mediastinum* 2021;5:AB004.